

Notice of Allowability

Application No.

10/697,073

Applicant(s)

CHANDRASEKARAN,
SASHIKANTH

Examiner

VAN H. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the election filed and the telephonic interview on 08/13/2009.
2. ☒ The allowed claim(s) is/are 1, 5-9, 22, 26-30, 43, 45, and 59-73 (renumbered as claims 1-29).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20090813</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Eric L. Sutton (Registration No. 61, 173) on 08/13/2009.

The application has been amended as follows:

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A ~~computer implemented~~ method for communicating data in a clustered computing system, the method comprising:

receiving an initial indication that an event was generated at a first node of the clustered computing[[a]] system;

receiving one or more subsequent indications that the event was generated at the first node of the clustered computing system;

determining that information from the initial indication is identical to information from said one or more subsequent indications;

in response to determining that the information from the initial indication is identical to the information from said one or more subsequent indications, coalescing the information from the initial indication with the information from said one or more subsequent indications into a coalesced event notification; and

propagating the coalesced event notification to a receiving node of the clustered computing system.

2-4. (Cancelled)

5. (Currently Amended) The method of Claim 1, wherein said clustered computing system comprises a database management system.

6. (Currently Amended) The computing environment of Claim 1, wherein said clustered computing system comprises a shared-disk database system.

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7. (Currently Amended) The computing environment of Claim 1, wherein said clustered computing system comprises a shared-cache parallel database management system.

8. (Currently Amended) The computing environment of Claim 1, wherein said clustered computing system comprises a shared-nothing database management system.

9. (Currently Amended) The computing environment of Claim 1, wherein said clustered computing system comprises a distributed database management system.

10-21. (Cancelled)

22. (Previously Presented) A computer-readable storage medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 1.

23-25.(Cancelled)

26. (Previously Presented) A computer-readable storage medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 5.

27. (Previously Presented) A computer-readable storage medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 6.

28. (Previously Presented) A computer-readable storage medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 7.

29. (Previously Presented) A computer-readable storage medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 8.

30. (Previously Presented) A computer-readable storage medium carrying one or more sequences of instructions, which when executed by

one or more processors, causes the one or more processors to perform the method recited in Claim 9.

31-42.(Cancelled)

43. (Currently Amended) A ~~computer implemented~~ method for communicating data in a clustered computing system, the method comprising:

receiving an indication that an event was generated at a first node of the clustered computing[[a]] system;

receiving one or more subsequent indications that the event was generated at the first node of the clustered computing system;

determining that information from said indication is identical to information from said one or more subsequent indications;

in response to determining that the information from the initial indication is identical to the information from said one or more subsequent indications, coalescing the information from the initial indication with the information from said one or more subsequent indications into a coalesced event notification;

appending onto an existing message the coalesced event notification that describes a single instance of said event, wherein the message was destined to be propagated to a receiving node that is not a node sending the message; and

propagating the coalesced event notification to the receiving node.

44. (Cancelled)

45. (Previously Presented) A computer-readable storage medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 43.

46-58. (Cancelled)

59. (Currently Amended) A computer apparatus comprising:
a processor; and
a memory coupled to the processor, the memory containing one or more sequences of instructions for communicating data ~~event notification~~ in a clustered computing environment, wherein execution of the one or more sequences of instructions by the processor causes the processor to perform the method of Claim 1.

60. (Currently Amended) The method of Claim 1, wherein the step of propagating comprises:

appending, onto an existing message, the coalesced event notification that includes information that describes a single instance of said event;

wherein the message is destined to be propagated to the receiving node, wherein the receiving node is not a node sending the message.

61. (Currently Amended) The method of Claim 60, where the step includes piggybacking the coalesced event notification on a message that is otherwise unrelated to the event.

62. (Previously Presented) The method of Claim 60, wherein the method further comprises:

setting an identifier indicating that the information describing an identical event is to be appended onto a message and propagated to a particular node.

63. (Previously Presented) The method of Claim 60, wherein the message has a fixed size, and the method further comprises:

appending additional information that describes additional events onto existing message traffic until free space in the fixed-size message is filled.

64. (Currently Amended) The method of Claim 60, wherein the method further comprises:

placing the information describing an identical event in a queue.

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65. (Previously Presented) The method of Claim 64, wherein the queue includes at least a priority queuing mechanism in order to determine a priority for events such that high priority events would supercede a low priority event in the queue.

66. (Previously Presented) The method of Claim 60, wherein an in-memory hash index is used to determine if an event exists in a shared-memory event buffer.

67. (Previously Presented) The method of Claim 66, wherein the shared-memory event buffer has a fixed size.

68. (Previously Presented) The method of Claim 60, wherein the method further comprises:

- partitioning a shared-memory event buffer;
- generating an event buffer entry of the shared memory event buffer;
- placing an event identifier into the event buffer entry; and
- inserting the information describing an identical event into the event buffer entry.

69. (Currently Amended) The method of Claim 68, the method further comprising:
~~comprises~~ if between a fastest head pointer and a tail pointer there does not exist a buffer entry in the shared memory event buffer for an identical event,
generating a new event buffer entry, and

wherein the inserting further comprises inserting the information describing said identical event into the new event buffer entry.

70. (Previously Presented) The method of Claim 68, wherein the inserting comprises: if between a fastest head pointer and a tail pointer there exists a buffer entry in the shared memory event buffer for the identical event, updating the buffer entry so that the buffer entry represents the subsequent occurrence.

71. (Previously Presented) The method of Claim 68, further comprising using a round robin method and the shared memory event buffer to determine to which existing message to append the information describing an identical event.

72. (Previously Presented) The method of Claim 60, wherein the method further comprises the step of:

maintaining information that describes a plurality of events.

73. (Previously Presented) The method of Claim 72, wherein the method further comprises the step of :

maintaining information that describes the plurality of events in a shared-memory event buffer.

REASONS FOR ALLOWANCE

Claims 1, 5-9, 22, 26-30, 43, 45, and 59-73 are allowed.

The following is an examiner's statement of reasons for allowance:

Interpreting the claims in light of the specification, Examiner finds the claimed invention is patentably distinct from the prior art of record.

The prior art does not expressly teach or render obvious the invention as recited in independent Claims 1 and 43.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Contact Information

Any inquiry or a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VAN H. NGUYEN whose telephone number is (571) 272-3765. The examiner can normally be reached on Monday-Thursday from 8:30AM-6:00PM. The examiner can also be reached on alternative Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HYUNG S. SOUGH can be reached at (571) 272-6799.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VAN H NGUYEN/

Primary Examiner, Art Unit 2194